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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/030,309 05/07/93 SMITH

22M2/0421

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D MLR3490	
EXAMINER	
MOSKOWITZ, N	
ART UNIT	PAPER NUMBER

2202  
DATE MAILED:

04/21/95

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 2/3/95 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892.        | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.             | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____   |

Part II SUMMARY OF ACTION

- ☒ Claims 1-6 and 8-13 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
- ☒ Claim 7 has been cancelled.
- ☐ Claims \_\_\_\_\_ are allowed.
- ☒ Claims 1-6 and 8-13 are rejected.
- ☐ Claims \_\_\_\_\_ are objected to.
- ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
- ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
- ☐ Formal drawings are required in response to this Office action.
- ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
- ☒ The proposed additional or substitute sheet(s) of drawings, filed on 2/3/95, has (have) been ☒ approved by the examiner; ☐ disapproved by the examiner (see explanation).
- ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
- ☒ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received; ☐ not been received  
☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
- ☐ Other

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EXAMINER'S ACTION

Art Unit: 2202

1. Applicant's Amendment received February 3, 1995 has been entered and the amended claims and arguments therein presented have been considered. An action on the pending application follows.
2. The text of those sections of Title 35, U.S. Code not include in this action can be found in a prior Office action.
3. Claims 1-13 are rejected under 35 U.S.C. § 103 as being unpatentable over Montgomery ('908) or Bockhorst et al when taken with Grossman and Close et al or Arriens.

In determining obviousness, the following factual determinations are made:

- a. first, the scope and content of the prior art;
  - b. second, the difference between the prior art and the pending claims;
  - c. third, the level of skill of a person of ordinary skill in this art; and
  - d. fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. Graham v. John Deere Co., 383 US. 1 17i, 148 USPQ 459, 466-67 (1966).
- Objective evidence includes a long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, imitation or copying of the claimed invention, and commercial success due to the features of

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the invention and not other factors. See e.g., Simmons Fasterner Corp. v. Illinois Tool Works, Inc. 739 (Fed. Cir. 1984).

Examining the scope and content of the prior art we find the following:

a) Montgomery and Bockhorst et al disclose a method, and apparatus, for transmitting data in a borehole. In Montgomery pressure transducer 707 provides an electrical signal representative of downhole pressure. Transducer 40 then converts the electrical signals to sonic signals generated along the pipe string. The sonic signals then pass uphole past any solid physical obstruction in the well and are converted by uphole transducer 23 to electrical signals. However, no data is stored uphole. It is noted that this reference also discloses the use of a microprocessor (704) downhole.

This system of sonic data transmission is noted to be superior to conventional hardwire and electromagnetic transmission, as they require complex hardware (Montgomery at column 1, lines 67-68 and column 2, lines 1-14).

In Bockhorst et al borehole pressure data is logged and acoustically transmitted uphole along the drill string. See especially columns 1, 3 and 4.

b) Grossman teaches:

1) Downhole pressure data storage (pages 2 and 3); and

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2) pick-up tool coupling for data retrieval (overshot device).

Close et al is representative of modern borehole logging of pressure, and downhole data storage. Arriens et al shows recording the data uphole prior to transmission to the earth's surface.

In addition, applicant has agreed that downhole data logging and storage are known in the prior art, as is inductive coupling to a retrieval tool. The problem of shut-in valve blockage is set forth as conventional (amendment, page 4).

Secondly, under Deere, the difference between this prior art and the pending claims lies in the combination of acoustic uphole data transmission over a section of a borehole tube with recording of the data at the acoustic receiver prior to pick-up tool transmission.

Third under Deere, one skilled in this art generally has graduate degree in geophysics and over seven (7) years of experience. One need only to look at the articles in any issue of Geophysics and Geophysical Prospecting, the leading journals in this field, to realize the technical complexity of this field and the amount of graduate school study and field experience necessary to work in this art.

To date no evidence of secondary considerations (objective evidence) has been presented.

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Therefore as the prior art shows the uphole recordation of the received pressure data to be conventional, as is the sonic signal transmission along the pipe, the combination would not have been unobvious to one skilled in this art.

4. Applicants' arguments have been considered and are not convincing. First of all, the references must be considered as an ordinary skilled artisan would consider them. See In re Jacoby, 309 F.2d 513, 135 USPQ 317, 319 (CCPA 1962) (obviousness question cannot be approached on basis that skilled artisans would only know what they read in references; such artisans must be presumed to know something about the art apart from what the references disclose); In re Bozek, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969) (conclusion of obviousness may be made "from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular references").

The assertion that acoustic data transmission between downhole and the surface was never successfully implemented in practice is not cogent. First of all, while noise is problematic in LWD and MWD systems with lengthy drill piping, in situations where the measuring does not take place during drilling the noise problem is clearly not substantial. In addition, the present claims do not recite MWD or LWD operation, nor do they recite the length of tube over which communication is consummated.

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Consequently, as the artisan comes upon the shut-in valve blockage problem for his electrical system, he would use the relatively old and well known use of acoustic signalling to send the requisite signal across a solid material not traversable by the electrical signals.

5. Claims 1-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

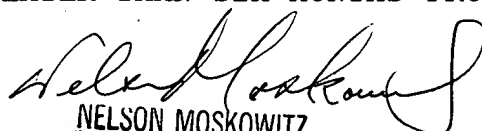
The term "closely adjacent" is an indefinite term of degree as the specification does not provide a standard for ascertaining the requisite degree, and one of skilled in the art would not reasonably be apprised of the scope of the invention.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Moskowitz/gj-6

4-19-95

  
NELSON MOSKOWITZ  
EXAMINER  
GROUP ART UNIT 222